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EXAMINER	
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2633	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/781,461	LICHTMAN ET AL.
	Examiner	Art Unit
	Dalzid Singh	2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,11-14,17,21,24-49,53-60,63 and 64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,11-14,17,21,24-49,53-60,63 and 64* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 30, 32, 63 and 64 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 63, cites "one or more optical amplifiers located with said plurality of nodes, each optical amplifier causing amplifier spontaneous emission noise to be injected and accumulated onto WDM optical signal..." The specification or the figures does not disclose any structure or circuit diagram to teach a person of ordinary skill how the optical amplifier is coupled to the nodes causing noise to be injecting and accumulated onto the WDM optical signal. Therefore, the specification fails to provide an enabling disclosure for claim 63.

Claim 30, cites "an optical switch mechanism coupled to each optical channels between said optical demultiplexer and said optical multiplexer" The specification or the figures does not disclose any structure or circuit diagram to teach a person of ordinary skill how the optical switch mechanism coupled to each optical channels between said

optical demultiplexer and said optical multiplexer. Therefore, the specification fails to provide an enabling disclosure for claim 30.

Claim 32, cites "switch means adapted to virtually disconnect one or more optical fiber connecting said optical demultiplexer and said optical" The specification or the figures does not disclose any structure or circuit diagram to teach a person of ordinary skill how the switch means adapted to virtually disconnect one or more optical fiber connecting said optical demultiplexer and said optical. Therefore, the specification fails to provide an enabling disclosure for claim 32.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Fevrier et al (US Patent No. 5,612,805).

Regarding claim 1, Fevrier et al disclose optical communication, as shown in Fig. 3, comprising:

receiving over said optical network one or more input optical signals potentially corrupted with noise accumulation (as shown in Fig. 3, Fevrier et al show receiving one or more input optical signals ($\lambda_1 \ldots \lambda_N$), since the input signals travel on transmission

lines, therefore the signal will degrade over time and potentially corrupted with accumulated noise);

filtering said one or more input optical signals as to remove said noise accumulation and to generate one or more filtered optical signal (as shown in Fig. 3, Fevrier et al shows filter ($F_1 - F_N$) to remove accumulated noise); and

outputting said one or more filtered optical signals onto said optical network (as shown in Fig. 3, Fevrier et al show outputting said one or more channels ($\lambda'_1 \ldots \lambda'_N$); in col. 1, lines 9-11, Fevrier et al disclose that the multiplexer system is suitable to be used in an optical network).

5. Claims 1-3, 5, 6, 11-14, 21, 26-29, 31 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishino (US Patent No. 6,594,046).

Regarding claim 1, Nishino discloses optical communication system, as shown in Fig. 1A, comprising:

receiving over said optical network one or more input optical signals potentially corrupted with noise accumulation (as shown in Fig. 1A, Nishio shows receiving one or more input optical signals ($\lambda 1 \ldots \lambda n$), since the input signals travel on transmission lines, therefore the signal will degrade over time and potentially corrupted with accumulated noise);

filtering said one or more input optical signals as to remove said noise accumulation and to generate one or more filtered optical signal (in col. 2, lines 47-52, Nishio teaches that the structural elements of the multiplexer and demultiplexer can be

realized by optical filters; since filter is used to filter out unwanted noise therefore accumulated noise can also be removed); and

outputting said one or more filtered optical signals onto said optical network (as shown in Fig. 1A, Nishio shows outputting said one or more channels ($\lambda 1 \ldots \lambda n$) from output port (161); since Nishio discloses WDM communication system, therefore it is inherent that such system can be used in optical network).

Regarding claim 2, as shown in Fig. 1A, Nishio shows demultiplexing said one or more input optical signals into individual optical signals having different wavelengths (demultiplexer 111 splits the input signal into plurality of optical channels); and

multiplexing said plurality of individual optical signals so as to generate said one or more filtered optical signals, wherein the multiplexing and demultiplexing function remove accumulated noise from each individual optical signal (Nishio shows multiplexer 151 which multiplexes the plurality of optical channels; in col. 2, lines 47-52, Nishio teaches that the structural elements of the multiplexer and demultiplexer can be realized by optical filters; since filter is used to filter out unwanted noise therefore accumulated noise can also be removed).

Regarding claim 3, as shown in Fig. 1A, Nishio shows that the demultiplexing generates said individual optical signals whereby the wavelength of each individual optical signal is fixed (the demultiplexer demultiplexes that optical signal into distinct fixed wavelength).

Regarding claims 5 and 26, Nishio does not disclose any bit-rate conversion to convert the bit-rate of the signal, therefore the demultiplexing is operative to be transparent to a bit rate of each individual optical signal.

Regarding claims 6 and 27, Nishio does not disclose any protocol conversion to convert protocol of the signal, therefore the demultiplexing is operative to be transparent to the protocol of each individual optical channel.

Regarding claims 11 and 28, Nishino shows monitoring circuits (see Fig. 1A and col. 2, lines 31-60).

Regarding claim 12 and 29, Nishio discloses equalizer coupled to each optical channel between the multiplexer and demultiplexer to equalize optical gain of individual optical channel (see Fig. 1A and col. 2, lines 31-60).

Regarding claim 13, Nishio shows enabling and disabling each individual optical channel in response to a corresponding control input (in Fig. 1A, Nishio shows attenuator to control the optical signal via a control input shown by arrow to the attenuator, to enable and disable each individual channel, for example, each channel can be pass or suppressed by controlling the attenuator).

Regarding claims 14 and 31, Nishio discloses wavelength division multiplexing technique determined by optical demultiplexer (as shown in Fig. 1A, Nishio shows multiplexer (111) and demultiplexer (151) which is a wavelength division multiplexing technique).

Regarding claim 21, Nishio discloses WDM communication system, as shown in Fig. 1A, comprising:

an optical demultiplexer (111) operative to demultiplex said WDM optical signals into individual optical channels having different wavelengths whereby accumulated noise in said WDM optical signal at the input to said optical demultiplexer is removed from said individual optical channels (in col. 2, lines 47-52, Nishio teaches that the structural elements of the multiplexer and demultiplexer can be realized by optical filters; since filter is used to filter out unwanted noise therefore accumulated noise can also be); and,

an optical multiplexer (151) optically coupled to said optical demultiplexer, said optical multiplexer operative to multiplexed said individual optical channels to generate a filtered WDM optical signal therefrom with noise accumulation removed (as shown in Fig. 1A, Nishio shows multiplexer (151) to multiplex and output the signals).

Regarding claim 34, Nishio discloses means for reducing cross talk placed in series with each optical channel (in col. 2, lines 47-52, Nishio teaches that the structural elements of the multiplexer and demultiplexer can be realized by optical filters; since filter is used to filter out unwanted noise therefore accumulated noise can also be removed; since the optical wavelength is placed adjacent relative to one another, any noise accumulation will result around the optical signal including surrounding each wavelength).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 17, 24, 30, 32, 33, 35, 36, 38-49 and 53-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fevrier et al (US Patent No. 5,612,805) in view of Nishino (US Patent No. 6,594,046).

Regarding claims 17, 24 and 49, as discussed above, Nishio discloses WDM communication system and differ from the claimed invention in that Nishio does not specifically disclose that the WDM communication system comprise of a ring network. However, since there are various different types of network, therefore it would have been a matter of design choice to implement the WDM communication system as a ring network.

Regarding claims 30 and 43, Nishio discloses WDM communication system as disclosed above comprising of multiplexer and demultiplexer and differs from the claimed invention in that Nishio does not show optical switch mechanism coupled to each optical channel between said optical demultiplexer and said optical multiplexer, wherein said optical switch mechanism adapted to enable and disable each individual optical channel in response to a corresponding control input. However, it is well known to provide switch between the demultiplexer and multiplexer. Fevrier et al is cited to show such well known concept. In Fig. 3, Fevrier et al show switch (SW_1) with a control

input shown by arrow to the switch, to enable and disable each individual channel, for example, each channel can be pass or dropped, see col. 5, lines 62-67 to col. 6, lines 1-5. Therefore, it would have been obvious to an artisan of ordinary skill in the art to provide a switch as disclose by Fevrier et al to the WDM communication system of Nishio. One of ordinary skill in the art would have been motivated to do such in order to add or drop signal.

Regarding claims 32 and 45, in view of the above rejection , Fevrier et al show switch means adapted to virtually disconnect one or more optical fiber connecting said optical demultiplexer and optical multiplexer thus shutting off one or more optical channels (in Fig. 3, Fevrier et al show switch (SW_1) with a control input shown by arrow to the switch, to shut off each individual channel, for example, each channel can be pass or dropped, see col. 5, lines 62-67 to col. 6, lines 1-5).

Regarding claims 33 and 46, Nishio discloses optical attenuator placed in series with each optical channel between the multiplexer and demultiplexer to control power level of individual optical channel (see Fig. 1A and col. 2, lines 31-60).

Regarding claims 35 and 48, Nishio discloses gain setting means coupled in-line with each optical channel between the multiplexer and demultiplexer to set the gain of each channel (see Fig. 1A and col. 2, lines 31-60).

Regarding claim 36, Nishio discloses WDM communication system, as shown in Fig. 1A, comprising:

an optical network terminator for removing accumulated noise from WDM optical signal in said optical network, wherein said optical network terminator (the optical

network terminator is the WDM system Nishio; in col. 2, lines 47-52, Nishio teaches that the structural elements of the multiplexer and demultiplexer can be realized by optical filters; since filter is used to filter out unwanted noise therefore accumulated noise can also be removed) comprises:

an optical demultiplexer (111) operative to demultiplex said WDM optical signals into individual optical channels having different wavelengths whereby accumulated noise in said WDM optical signal at the input to said optical demultiplexer is removed from said individual optical channels (in col. 2, lines 47-52, Nishio teaches that the structural elements of the multiplexer and demultiplexer can be realized by optical filters; since filter is used to filter out unwanted noise therefore accumulated noise can also be removed); and,

an optical multiplexer (151) optically coupled to said optical demultiplexer, said optical multiplexer operative to multiplexed said individual optical channels to generate a filtered WDM optical signal therefrom with noise accumulation removed (in col. 2, lines 47-52, Nishio teaches that the structural elements of the multiplexer and demultiplexer can be realized by optical filters; since filter is used to filter out unwanted noise therefore accumulated noise can also be removed).

Nishio discloses WDM communication system and differs from the claimed invention in that Nishio does not specifically disclose a plurality of nodes. However, in optical communication system it would have been obvious to provide plurality of nodes. Fevrier et al is cited to show such well known concept. In Fig. 6, Fevrier et al shows plurality of nodes coupled to form a ring. Therefore, it would have been obvious to an

artisan of ordinary skill in the art at the time the invention was made to form the system of Nishio into plurality of nodes as taught by Fevrier et al. One of ordinary skill in the art would have been motivated to do such in order to provide WDM access at different locations.

Regarding claim 38, as shown in Fig. 1A, Nishio shows that the demultiplexing generates said individual optical signals whereby the wavelength of each individual optical signal is fixed (the demultiplexer demultiplexes that optical signal into distinct fixed wavelength).

Regarding claim 39, Nishio does not disclose any bit-rate conversion to convert the bit-rate of the signal, therefore the demultiplexing is operative to be transparent to a bit rate of each individual optical signal.

Regarding claims 40, Nishio does not disclose any protocol conversion to convert protocol of the signal, therefore the demultiplexing is operative to be transparent to the protocol of each individual optical channel.

Regarding claim 41, Nishino shows monitoring circuits (see Fig. 1A and col. 2, lines 31-60).

Regarding claim 42, Nishio discloses equalizer coupled to each optical channel between the multiplexer and demultiplexer to equalize optical gain of individual optical channel (see Fig. 1A and col. 2, lines 31-60).

Regarding claim 44, Nishio discloses wavelength division multiplexing technique determined by optical demultiplexer (as shown in Fig. 1A, Nishio shows multiplexer (111) and demultiplexer (151) which is a wavelength division multiplexing technique).

Regarding claim 47, Nishio discloses means for reducing cross talk placed in series with each optical channel (in col. 2, lines 47-52, Nishio teaches that the structural elements of the multiplexer and demultiplexer can be realized by optical filters; since filter is used to filter out unwanted noise therefore accumulated noise can also be removed; since the optical wavelength is placed adjacent relative to one another, any noise accumulation will result around the optical signal including surrounding each wavelength).

Regarding claim 53, Nishio discloses WDM communication system, as shown in Fig. 1A, comprising:

an optical network terminator for removing noise accumulation from WDM optical signal in said optical ring network, wherein said optical network terminator (the optical network terminator is the WDM system Nishio; in col. 2, lines 47-52, Nishio teaches that the structural elements of the multiplexer and demultiplexer can be realized by optical filters; since filter is used to filter out unwanted noise therefore accumulated noise can also be removed) comprises:

an optical demultiplexer (111) operative to demultiplex said WDM optical signal into individual optical channels having different wavelengths, whereby noise accumulation in said WDM optical signal at the input to said optical demultiplexer is removed from said individual optical (in col. 2, lines 47-52, Nishio teaches that the structural elements of the multiplexer and demultiplexer can be realized by optical filters; since filter is used to filter out unwanted noise therefore accumulated noise can also be removed); and,

an optical multiplexer (151) optically coupled to the output of said plurality of monitors, said optical multiplexer operative to multiplex said individual optical channels to generate a filtered WDM optical signal therefrom with noise accumulation removed;

plurality of optical attenuator (121 to 12n), each optical attenuator coupled in-line to an individual optical channel, said optical attenuator operative to vary the optical gain of an optical signal; and

plurality of monitors (141-14n), each monitor coupled in-line to an individual optical channel, said monitor operative to measure the optical power of an optical signal.

Nishio discloses WDM communication system and differs from the claimed invention in that Nishio does not specifically disclose a plurality of nodes. However, in optical communication system it would have been obvious to provide plurality of nodes. Fevrier et al is cited to show such well known concept. In Fig. 6, Fevrier et al shows plurality of nodes coupled to form a ring. Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to form the system of Nishio into plurality of nodes as taught by Fevrier et al. One of ordinary skill in the art would have been motivated to do such in order to provide WDM access at different locations.

Regarding claims 54 and 55 , as shown in Fig. 1A Nishio shows that the optical demultiplexer is operative to generate multiple channels and the multiple channel in multiplexed to produce a multiplexed optical signal. The combination of Nishio and Fevrier et al differs from the claimed invention in that the combination does not

specifically disclose that the demultiplexer generate eight channels corresponding to eight different wavelength and that the multiplexer multiplexes the eight different channels. However, Nishio and Fevrier et al show demultiplexer and multiplexer capable of generating and multiplexing plurality of optical channels. Based on this teaching it would have been obvious to an artisan of ordinary skill in the art to limit the number of channels that will be generated by the demultiplexer to eight channels. Furthermore, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Swain et al.*, 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Minning and Mfg. Co. v. Coe, 69 App D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App D.C. 324, 135 F.2d 11, 57 USPQ 136. In addition, discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Antonie*, 559 F.2d 239, 618, 195 USPQ 6 (CCPA 1977); *In re Aller,* 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955). See also *In re Aller,* 105 USPQ 233 (CCPA 1955) and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to set the number of channels to an optimum or workable value or range by routine experimentation.

Regarding claim 56, Nishio does not disclose any bit-rate conversion to convert the bit-rate of the signal, therefore the demultiplexing is operative to be transparent to the bit rate of each individual optical channel.

Regarding claim 57, Nishio does not disclose any protocol conversion to convert protocol of the signal, therefore the demultiplexing is operative to be transparent to the protocol of each individual optical channel.

Regarding claim 58, Nishio shows enabling and disabling each individual optical channels in response to a corresponding control input (in Fig. 1A, Nishio shows optical attenuator with a control input shown by arrow to the optical attenuator, to enable and disable each individual channel, for example, each channel can be pass or suppressed).

Regarding claim 59, Nishino discloses equalizing the gain of each individual optical channel (gain of individual channel is equalized by adjusting the attenuator as shown by Nishino).

Regarding claim 60, Nishino discloses monitoring the power level of each individual channel.

8. Claims 4 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio (US Patent No. 6,594,046) in view of Choi et al (US Patent No. 6,529,317).

Regarding claims 4 and 25, Nishio discloses WDM communication system as discussed above and differ from the claimed invention in that Nishio does not specifically disclose optical amplifier causing ASE noise. However, providing optical amplifier in optical network is well known. Furthermore, it is well known that optical amplifiers generate noise such as amplified spontaneous emission (ASE) noise. Choi et al is cited to show such well known concept. In col. 5, lines 22-30, Choi et al disclose

amplifying stage and tunable filter to reduce the ASE noise. Therefore, it would have been obvious to an artisan of ordinary skill in the art to provide optical amplifier and a filter to reduce the ASE noise. One of ordinary skill in the art would have been motivated to do such in order to increase signal strength and at the same time reduce noise

9. Claims 37, 63 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio (US Patent No. 6,594,046) in view Fevrier et al (US Patent No. 5,612,805) and further in view of Choi et al (US Patent No. 6,529,317).

Regarding claim 37, the combination of Nishio and Fevrier et al disclose optical communication as discussed above and differ from the claimed invention in that the combination does not specifically disclose optical amplifier causing injection ASE noise. However, providing optical amplifier in optical network is well known. Moreover, it is well known that optical amplifiers generate noise such as amplified spontaneous emission (ASE) noise. Choi et al is cited to show such well known concept. In col. 5, lines 22-30, Choi et al disclose amplifying stage and tunable filter to reduce the ASE noise. Therefore, it would have been obvious to an artisan of ordinary skill in the art to provide optical amplifier and a filter to reduce the ASE noise. One of ordinary skill in the art would have been motivated to do such in order to increase signal strength and at the same time reduce noise.

Regarding claim 63 (as far as understood), Nishio disclose WDM communication system, as shown in Fig. 1A, comprising:

an optical terminator (see Fig. 1A) for removing accumulated noise from said WDM optical signal, comprising:

an optical demultiplexer (111) operative to demultiplex said WDM optical signal into individual optical signals having different wavelengths whereby noise accumulation in said WDM optical signal at the input to said optical demultiplexer is removed from said individual optical signals; and

an optical multiplexer (151) optically coupled to said optical demultiplexer, said optical multiplexer operative to multiplexed said individual optical signal to generate a filtered WDM optical signal therefrom with noise accumulation removed (in col. 2, lines 47-52, Nishio teaches that the structural elements of the multiplexer and demultiplexer can be realized by optical filters; since filter is used to filter out unwanted noise therefore accumulated noise can also be removed).

Nishio discloses WDM communication system and differs from the claimed invention in that Nishio does not specifically disclose a plurality of nodes. However, in optical communication system it would have been obvious to provide plurality of nodes. Fevrier et al is cited to show such well known concept. In Fig. 6, Fevrier et al shows plurality of nodes coupled to form a ring. Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to form the system of Nishio into plurality of nodes as taught by Fevrier et al. One of ordinary skill in the art would have been motivated to do such in order to provide WDM access at different locations.

Furthermore, the combination of Nishio and Fevrier et al discloses optical network as discussed above and differ from the claimed invention in that the combination does not specifically disclose optical amplifier causing injection ASE noise. However, providing optical amplifier in optical network is well known. Moreover, it is well known that optical amplifiers generate noise such as amplified spontaneous emission (ASE) noise. Choi et al is cited to show such well known concept. In col. 5, lines 22-30, Choi et al disclose amplifying stage and tunable filter to reduce the ASE noise. Therefore, it would have been obvious to an artisan of ordinary skill in the art to provide optical amplifier and a filter to reduce the ASE noise. One of ordinary skill in the art would have been motivated to do such in order to increase signal strength and at the same time reduce noise.

Regarding claim 64, as shown in Fig. 1A, Nishio shows demultiplexer (111) separating each optical signal. The separation of the signal is determined by the demultiplexer.

Response to Arguments

10. Applicant's arguments filed February 27, 2004 have been fully considered but they are not persuasive.

Applicant argues that the prior art (Fevrier et al) fails to disclose or suggest at least the step of filtering the input optical signals to remove the noise accumulated and to generate filtered optical signals. However, in Fig. 3, Fevrier et al shows tunable filters (F1 to FN) tunable to one of the wavelength. Since the filter is tunable for each

wavelength, noise accumulated with each wavelength of the optical signal will be filtered out and removed.

11. Applicant's arguments with respect to all pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272--3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS
January 6, 2005

HANH PHAN
PRIMARY EXAMINER